

### **REMARKS/ARGUMENTS**

The Applicants have carefully considered this application in connection with the Examiner's Action and respectfully request reconsideration of this Application in view of the foregoing amendment and the following remarks.

The Applicants originally submitted Claims 1-20 in the application. The Applicants have amended Claims 1, 5, 8, 12, 13, 15 - 16 and 19. Accordingly, Claims 1-20 are currently pending in the application. Support for amendments to independent Claims 1, 8 and 15 can be found, among other places, on page 18, paragraph 34 to page 20, paragraph 34, of the present Application.

#### **I. Formal Matters and Objections**

The Examiner has objected to claims 5, 12, 16 and 19 as containing informalities or grammatical errors. In response, the Applicants have amended the claims to correct these inadvertent errors. The Applicants appreciate the Examiner's diligence in finding and bringing these errors to their attention.

#### **II. Rejection of Claims 1-20 under 35 U.S.C. §§103(a)**

The Examiner has rejected Claims 1-4, 6-11, 13-18 and 20 under 35 U.S.C. §103(a) as being unpatentable over U.S. Publication No. 2002/0085578 to Dell, *et al.* ("Dell") in view of U.S. Publication No. 2001/0050916 to Krishna, *et al.* ("Krishna"). The Examiner has further rejected Claims 5, 12, and 19 under 35 U.S.C. §103(a) as being unpatentable over Dell in view Krishna and in further view of U.S. Patent No. 6,975,638 to Chen, *et al.* ("Chen").

Claim 1 is directed to a non-blocking crossbar. Claim 1 has a scheduler that is configured to cause a packet that is one of a plurality of lengths to be transmitted from one of the inputs toward one of the outputs only when both the destination FIFO associated therewith and an interposing one of said crossbar FIFOs have sufficient memory to contain an entirety of the packet.

Dell is directed to a switching stage that employs crossbar devices. (Page 2, paragraph 0013). In Dell, the "switch fabric of the present invention is a cell-switching engine handling *fixed-sized* switching cells." (Page 6, paragraph 0090). Dell uses one or more crossbars to achieve scalability in self-routing of cells. (Page 2, paragraph 0012). Krishna is also directed to cell switching. (Abstract).

In Dell, "[a] switching cell has a header and a payload. The payload size is programmable... The term 'programmable' implies that ... the particular payload size is selected when the fabric switch is initially configured. Once the switch fabric is configured, the payload size remains *fixed* for all subsequent switch fabric operations." (Page 6, paragraph 0090; emphasis added).

In Dell, 'bids' are used for the future routing of cells through the crossbar devices. In Dell, the payload of each cell carries a bid that corresponds to an earlier transmitted and granted bid (Page 9, paragraph 0125). The distribution of bids to crossbars is controlled by a pseudo-random number generator implemented in an input device. (Page 9, paragraph 0122), thereby pseudo-randomly routing cells to the Dell's various crossbars.

The Applicants respectfully traverse a characterization of Dell made in the Examiner's Action. The Examiner's Action states that Dell discloses input devices receiving grants to transmit

cells, *which are packets ...*" (Examiner' Action, page 3, emphasis added). The Applicants respectfully disagree. The cells of Dell are not "packets" as claimed in Claim 1. The packets of Claim 1 can be of a *plurality* of lengths; in contrast, the cells of Dell are *fixed* length, as will be discussed in more detail, below. However, for the purpose of expediting prosecution, Claim 1 as amended now further clarifies that the present invention of Claim 1 comprises a scheduler configured to cause a packet that is one of a plurality of lengths to be transmitted from one of the inputs toward one of the outputs.

Furthermore, Claim1 as amended further recites that a scheduler is configured to cause a packet that is one of a plurality of lengths to be transmitted from one of the inputs toward one of the outputs only when both the destination FIFO associated therewith and an interposing one of the crossbar FIFOs have sufficient memory to contain the packet, wherein the packet to be contained is an entire packet. One embodiment of Claim 1 checks to see whether the destination FIFO 246 has sufficient memory to contain the packet, (which can be one of a plurality of lengths), wherein the packet to be contained is an entire packet.

For example, page 19, paragraph 0035, of the Application states: "the first input is sending a short packet to the first output and the second input is sending a long packet to the second output. When the first input finishes transmitting the [short] packet to the first output and needs to send a packet [for ease of discussion in this Amendment, henceforth referenced as a 'third' packet] to the second output, the scheduler 240 determines if the crossbar FIFO associated with the first input and the destination FIFO for the second output can contain the [third] packet."

In some embodiments, as a result of potential differences of lengths between the 'third' packet and the long packet, advantageously the 'third' packet will not necessarily be blocked when the 'third' packet is also sent to the second output. In some embodiments, as described on page 20, paragraph 35 of the present Application, "the first input is not blocked [from having a 'third' packet being conveyed to the second output] because the second input is still transmitting [a] long packet to its associated crossbar FIFO of the second output."

This is wholly unlike Dell, which merely determines if a queue can contain a cell. Dell would not check FIFOs, whether they be destination FIFOs or crossbar FIFOs, to determine whether they have sufficient memory to contain an entire packet, as Claim 1 recites. To the contrary, in Dell, if any space in memory is available, it is deemed sufficient. The actual amount of memory available to contain a cell is not checked. Dell has no need to check the amount of memory, as cell length never varies.

Furthermore, one of ordinary skill in the art would not be motivated to use or combine the cited references of Dell or Krishna to arrive at the invention of Claim 1. As referenced above, Dell is directed to scaling through the use of multiple crossbars to increase throughput, *i.e.*, using a distributed network of crossbars. One of ordinary skill in the art would not be motivated to find Dell or combine Dell with Krishna to check for memory sufficiency to contain an entire cell in a crossbar FIFO or a destination FIFO, as this would increase Dell's complexity without increasing its cell throughput.

Although the above discussion relates to Claim 1, independent Claims 8 and 15 should also be deemed to be patentable for at least reasons that are analogous to Claim 1 being deemed patentable.

Dell, individually or in combination with Krishna, fails to teach or suggest the invention recited in independent Claims 1, 8 and 15 and their dependent claims, when considered as a whole. Claims 1-20 are therefore not obvious in view of Dell, Krishna and Chang.

In view of the foregoing remarks, the cited references do not support the Examiner's rejection of Claims 1-20 under 35 U.S.C. §103(a). The Applicants therefore respectfully request the Examiner withdraw the rejection.

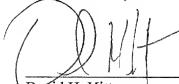
### III. Conclusion

In view of the foregoing amendment and remarks, the Applicants now see all of the Claims currently pending in this application to be in condition for allowance and therefore earnestly solicit a Notice of Allowance for Claims 1-20.

The Applicants request the Examiner to telephone the undersigned attorney of record at (972) 480-8800 if such would further or expedite the prosecution of the present application. The Commissioner is hereby authorized to charge any fees, credits or overpayments to Deposit Account 08-2395.

Respectfully submitted,

HITT GAINES, PC

A handwritten signature in black ink, appearing to read 'D. Hitt', is written over a horizontal line.

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